

Investigating possible wobbling motion in ^{103}Pd

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on behalf of DIAMANT and NEEDLE collaborations

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In triaxially deformed nuclei, wobbling motion can appear, namely when the nucleus rotates around the principal axis with the largest moment of inertia, and this axis undergoes harmonic oscillations around the space-fixed angular momentum vector. Recently, the phenomenon has been reported in the lower-energy bands of the odd-neutron ^{105}Pd [1] nucleus. However, doubts have been raised about the wobbling interpretation of these bands most lately [2], and an alternative interpretation, “tilted precession” (TiP), was suggested instead. Studying the neutron $h_{11/2}$ side bands in the neighbouring odd-neutron ^{103}Pd could help clarify the existence of wobbling motion at low energy in transitional nuclei with $A \sim 100$ mass number and also could provide us with information on the border of this triaxiality region.

A 14-day experiment was performed in May 2024 at the Heavy Ion Laboratory at the University of Warsaw to populate the negative-parity neutron $h_{11/2}$ side bands in ^{103}Pd and ^{101}Ru . A ^{12}C beam was accelerated by the U200-P Cyclotron at 69 MeV energy, impinged on a 1 mg/cm^2 ^{96}Zr target. The beam current was 2 pA on average. The NEEDI setup — the EAGLE spectrometer [3] together with NEDA detectors [4] and the DIAMANT charge-particle array [5] — was used. A detailed description of the experiment and preliminary results will be presented.

- [1] J. Timár *et al.*, Phys. Rev. Lett. **122** (2019) 062501.
- [2] E. A. Lawrie, O. Shirinda and C. M. Petrache, Phys. Rev. C **101** (2020) 034306.
- [3] M. Palacz *et al.*, HIL Annual Report (2023) 22.
- [4] G. Jaworski *et al.*, Acta Phys. Polon. Supp. **17** (2024) 3-A12.
- [5] I. Kuti *et al.*, Acta Phys. Polon. Supp. **17** (2024) 3-A13.